DEVELOPMENT OF A CD-BASED SPECIFICATIONS LIBRARY AND ENGINEER'S PROJECT ESTIMATOR FOR THE MINISTRY OF COMMUNICATION (MOC), KINGDOM OF SAUDI ARABIA

by

Terance L. McNinch*

ABSTRACT

The use of computers and the availability of electronic media have had a significant impact on business operations throughout the world. But while the private sector has embraced these technologies and realized associated benefits, public sector adoption has lagged behind. Numerous factors have caused this to occur—lack of funding for computer hardware and software, lack of understanding of the technology and the possible efficiencies by management, and resistance to change by agency management and staff—are just a few. Every organization is different. Every organization has its own challenges to overcome. These technologies have proven their worth in the private sector and need to be exploited by the public sector in developed countries and less developed countries alike.

This paper describes an electronic library and electronic project estimator developed for the Ministry of Communication (MOC), Kingdom of Saudi Arabia. Working through the U.S. Joint Economic Cooperation Program—Riyadh (JECOR), this development is part of an agency initiative to integrate computer-based technologies into the Ministry's daily work processes.

Over 5000 pages of specifications, manuals, standard plans, and forms, in both Arabic and English, were compiled into an electronic library. The library provides a variety of user tools such as: search capability across all documents, print capability by specific pages or the entire document, and the ability to copy and paste sections into word processing documents.

The electronic project estimator eliminates the most common errors that occur during estimate preparation: transposed characters in Pay Item Code numbers, "unofficial" codes and descriptions, miscoded funding categories, and miscalculation of unit quantity, price and totals. It provides an export file that can be transferred between personnel for continued work or review. The Bid Entry utility provides an organized method of collecting contractor bid prices. The Average Unit Price utility allows the user to perform analysis on collected bid prices.

* Director, Michigan's Local Technical Assistance Program and the Technology Development Group, Department of Civil & Environmental Engineering, 309 Dillman Hall, Michigan Technological University, Houghton, MI 49931, Phone: (906) 487-2102, Fax: (906) 487-3409, E-mail tlmcninc@mtu.edu

The software was developed using an object-based approach and non-proprietary document formats. This strategy will simplify future modification and enhancement of the software for the MOC, and also provide cost-effective adoption by transportation agencies in other countries.

The developer's goal was to assist JECOR in providing the MOC with electronic resources that exceed the paper resources they previously used and improve the method in which project estimates are prepared, reviewed and submitted.

1. BACKGROUND

1.1 Traditional Paper-Based Documentation

From specifications for construction to materials use and testing manuals to administrative forms for project programming, this administrative documentation poses a surprising cost liability. The distribution and storage of hardcopy versions, along with the processing and distribution of addendum, errata sheets, special provisions, supplemental specifications, and pay item code changes can easily overshadow the original cost of publication.

Case In Point: In 1996 the Michigan Department of Transportation published a revised version of their Specifications for Construction (metric). At 837 pages, the printing cost for 13,000 copies was approximately USD $12.60 each for a total of USD $164,000. In 2001 this publication is being revised again. In February 2001, there were 3,700 copies of the 1996 version remaining in storage. Considering only the original printing cost, the value of the remaining inventory is worth at least USD $44,000. When the 2001 edition is released, the outdated copies will assume a value near zero or possibly become a liability, if costs for disposal are factored in.

The above case should not lead the reader to believe that poor decisions were made in ordering the initial quantity or that the management process for publications at the agency is flawed. On the contrary, the decision to publish 13,000 copies was probably the best decision that could have been made. The problem lies in the cost structure of publishing books.

The greatest cost of publishing is incurred prior to the point when the first copy can be printed. The cost for research and preparation are variable for every publication and relative to the type of content. While this is a very important aspect, this analysis does not attempt to factor in those costs because they are incurred regardless of whether publication is paper or electronic.

Printing costs are extremely sensitive to economies of scale. This sensitivity creates significant discounts when the publication run increases from 500 to 1500 to 5000 and greater, until a point where the discount matches the maximum margin of production. This structure requires the customer to order large quantities in order to reduce the single copy cost. It also makes a second run publication of a small quantity very cost prohibitive.

The mission of most transportation agencies with regards to publications tends to be—distribute as many, as widely, as possible. That mission combined with the above economies of scale and one can see why publication inventories exceed demand and excessive costs are incurred by the agency. When supplemental material and errata need to be printed, managed and distributed over a number of years, the cost of the publication effort continues to rise.

Smaller agencies that don't require publication quantities in the thousands face a dilemma. They either pay an unreasonably higher cost per copy or take the alternative approach of mass producing documentation with a copier and then placing it in three ring binders. The size of the notebooks causes the agency to incur even greater storage and shipping costs. Additionally, the quality of the copied page deteriorates over time as copies are made from copies, rather then the original.

Large and small public agencies alike have significant advantage to gain in changing their business practices to accommodate electronic publishing technologies. An agency can drastically reduce its publication storage and distribution costs by taking advantage of existing computer hardware, agency Intranets or the Internet. Production of a compact disc containing thousands of pages of documentation can be as low as USD $2.00 each for a run of 1000 copies. Distribution via an agency Intranet or the Internet can reduce these costs to zero.

1.2 Construction Project Administration

The use of computers in transportation agencies for design, analysis and administration is commonplace. Administration, however, is a special case—one where the computer is commonly used as a typewriter. This situation is brought about by the lack of software tools that reflect the needs of the administrative function and enables these staff to maximize the power of the computer. Major software companies don't develop this type of software, because as each agency's administrative process is unique, the customer base is very small. Yet software that helps to speed up review and approval processes, and eliminate the most common human errors, can have a great impact on the efficiency of personnel and is sorely needed.

2. INTRODUCTION

In 1997, Michigan's Local Technical Assistance Program (LTAP) working with the Michigan Department of Transportation (MDOT) released the Michigan Engineers Resource Library CD (MERL). MERL was developed for use by county and city engineers in preparing estimates for federal-aid projects and by MDOT engineers responsible for reviewing and approving those projects. The library portion of the MERL was comprised of the 1996 Standard Specifications for Construction, Special Provisions, and Supplemental Specifications; the Michigan Test Methods; and the Michigan Materials Sampling Guide. MERL 1.0 included a Project Estimator—interactive software for preparing engineer's estimates for road and bridge projects. The Project Estimator included an Estimator's Worksheet, Pay Item Codes (metric), Pay Item Descriptions, statewide Average Unit Prices, and an online version of the 1996 Standard Specifications for Construction. It also included a project export file type compatible with the AASHTO Trns*port software that MDOT uses for its statewide project management.

MERL 1.6 updated newly created Pay Item Codes and Special Provisions. MERL 2.0 is currently in beta testing and will incorporate the 2001 Standard Specifications for Construction, dual units (English/metric), regional and local Average Unit Prices, export to FieldManager, and Internet-based maintenance update.

The U.S. DOT Office of International Assistance contacted us and requested a number of the MERL CDs for distribution to their international partners. In the first quarter of 1998, a representative of JECOR contacted us about developing a CD similar to MERL, but with modifications, for the Ministry of Communications (MOC), Kingdom of Saudi Arabia. That request led to a visit in our offices by a JECOR representative for more in-depth discussions, a request for proposal, and issuance of the contract.

3. THE MINISTRY OF COMMUNICATION ENGINEERING RESOURCE LIBRARY (MOC ERL)

The Ministry was interested in expanding the library concept to include multiple, bilingual publications in various digital formats. They requested that printable indexes be prepared for specific documents. The project estimator module needed modification to accept Arabic script in the worksheet and reports, Hijrah date format, Saudi currency, and to include additional utilities that would support contractor cost analysis—analysis that was not available within the MOC. The entire system needed to be compatible with the MS Windows 98 Arabic operating system. The final deliverable would include 1000 compact discs.

3.1 Engineering Resource Library

1998 General Specifications for Road & Bridge Construction – Arabic
1998 General Specifications for Road & Bridge Construction – English
Addendum to the November 1998 General Specifications – English
MOC Highway Materials Manual – English
MOC 1998 General Specifications Master Pay Item List – English
MOC 1998 Supplemental Specifications for Agricultural Roads – Arabic
MOC 1998 Supplemental Specifications for Agricultural Roads – English
Work Zone Traffic Control Manual – Arabic
Work Zone Traffic Control Manual – English
Sign Installation and Maintenance Handbook – Arabic/English
Materials & Research Department Test Methods (MRDTM) Forms
Special Specification for Maintenance Contracts – Arabic

3.2 Printable Indexes:

1998 General Specifications for Road & Bridge Construction – English
MOC 1998 Supplemental Specifications for Agricultural Roads – English
MOC Highway Materials Manual – English
Help Manual for Using Adobe Acrobat Reader with the MOC ERL CD Library

3.4 Project Estimator Features

Estimator's Worksheet
Bid Price Entry Utility
Average Unit Price Utility
1998 General Specifications for Road & Bridge Construction – English
Bilingual Pay Item Descriptions (June 2000 addition)
Hijrah Date Format
Saudi Currency (SR)

3.5 Standard Plans CAD

104 hand-drawn standard plans for construction were converted to CAD files. These files were not included on the MOC ERL as originally intended, but were issued on a separate CD release.

4. ENGINEERING RESOURCE LIBRARY—SPECIFICATIONS

4.1 Document Distribution File Type

We recommended using Adobe Acrobat software and its Portable Document Format (pdf) as the standard for document distribution. Using a freely distributed Acrobat Reader viewer, the .pdf file can be viewed, printed and searched regardless of the platform or operating system the user is working on or the documents were created on. Reader software for a variety of operating systems were included on the CD and updates are available at no cost at the Adobe software web site, www.adobe.com. This approach does not require users to own the software in which the original document was created—a significant cost saving for the user.

The .pdf file type provides a basic amount of security that prevents the documents from being edited. The Acrobat Reader software does not have the capability to modify the document files. Only the Acrobat Developer software can modify the document files. Once the document files are placed on the CD, they become read-only.

The Acrobat Reader displays the document on the screen just as the original appeared when printed. The .pdf file type retains the look and formatting of the original. Surprisingly the .pdf file size is typically much smaller then the original. Although file size was not a significant consideration for this version of the MOC ERL library, when the MOC decides to increase the number of documents contained in the library, a smaller file size will allow the library to continue to fit on one CD.

The Acrobat Reader provides a variety of tools for navigating through the library. A magnifier tool can enlarge (1600%) or reduce (12%) the document view. Developer-defined bookmarks that display chapters and subsections offer an additional interface that is very similar to navigating a paperbound publication. The documents were prepared with interactive "hyperlinks." A hyperlink is a highlighted text area, such as another document title, a chapter title, or a word needing a definition. When the user clicks the mouse on the highlighted hyperlink, the linked-to document appears. The MOC Table of Contents page has all the included publication titles listed and hyperlinked. See Appendix A.

Although the .pdf document appears to be simply a screen version, when properly processed by the developer it can also contain "active" text. Using the TEXT SELECT tool, the user can COPY a text portion of the .pdf document and PASTE it in a word processing file. This feature works for both Arabic and English documents.

In addition to a simple FIND function available for a single, open document, the Acrobat Reader provides a sophisticated SEARCH function that uses Boolean logic (AND, OR, NOT, etc.) to search the developer-prepared index of the entire library. A search for "aggregate" yields 18 documents, all ranked by the number of times the word appears in a given document. As the user opens the found documents, the word "aggregate" is highlighted throughout. Unfortunately this feature only works with the English documents. Although the Acrobat Reader is currently capable of indexing 14 languages, Arabic is not one of those. The Adobe Corporation has indicated that Arabic is one of the languages they expect to implement in the future.

4.2 Library Documents

The library contains over 5,000 pages of specifications and documentation. Publications that were being revised and updated in 1998 are provided in both .pdf and MS Word format. The remaining publications that were not under revision, but for which hardcopy versions were no longer available for distribution, were handled on a case-by-case basis. File formats for these publications vary, depending on the MOC needs. All of the titles in this library will no longer be distributed in print form—the only distribution would be on the CD Library. The following list provides details.

4.3 Publications Revised in 1998

1998 General Specifications for Road & Bridge Construction – Arabic (PDF and MS Word)
1998 General Specifications for Road & Bridge Construction – English (PDF and MS Word)
Addendum to the November 1998 General Specifications – English (PDF and MS Word)
MOC 1998 General Specifications Master Pay Item List – English (PDF and MS Word)
MOC 1998 Supp. Specifications for Agricultural Roads – English – Arabic (PDF and MS Word)
MOC 1998 Supplemental Specifications for Agricultural Roads – English (PDF and MS Word)
Sign Installation and Maintenance Handbook – Arabic/English (PDF)
Special Specification for Maintenance Contracts – Arabic (PDF)

4.4 Publications That Were No Longer Available

MOC Highway Materials Manual – English (PDF and MS Word). Working from one of the few complete paper copies available, 780 pages were scanned to a digital image, processed with optical character recognition software, converted to MS Word, formatted to resemble the original, proof-read, and converted to a PDF image.

Work Zone Traffic Control Manual – Arabic/English (PDF). The original manuals were scanned to a digital image and converted directly to a PDF image file.

Materials & Research Department Test Methods (MRDTM) Forms 50 materials testing forms were reconstructed in MS Excel and converted to PDF files.

Special Specification for Maintenance Contracts – Arabic (PDF). Converted to a PDF file.

4.5 Printable Indexes

To create the printable indexes requested by the Ministry, custom software was developed that can index every word used in a publication and identify the chapter and page the word occurred on. Running the indexer through several iterations created a dictionary of important words. The final index was produced using this custom dictionary.

5. PROJECT ESTIMATOR--SPECIFICATIONS

Project engineers everywhere prepare preliminary estimates for road and bridge projects. They all face the same reoccurring problems. Some of the most common errors are transposed characters in Pay Item Code numbers, miscoded funding categories and miscalculation of unit quantity, price and total. These elementary errors combined with redundant data entry of project information into multiple systems can delay a project significantly, at times preventing the project from meeting a bid-letting date. Additionally, “unofficial” codes and descriptions can create costly confusion when an agency assumes the unofficial item means one thing and the contractor assumes it means something different. The Estimator’s Worksheet is designed to eliminate these common errors and redundant data entry, allowing the engineer to focus on more important aspects of designing and programming the project.

5.1 Creating a New Project Estimate

Preparing an estimate begins with setting up the project. Using the New Project entry form the engineer enters basic project information and selects a Project Category. Multiple subcategories can be selected within a single main category. See figure 1.

The basic project information includes:

- Project Number
- Project Name
- Estimate Number
- Work Classification
- Region
- Description of the Work

The Project Number and the Region where the work is being done are required information. All other information is optional.

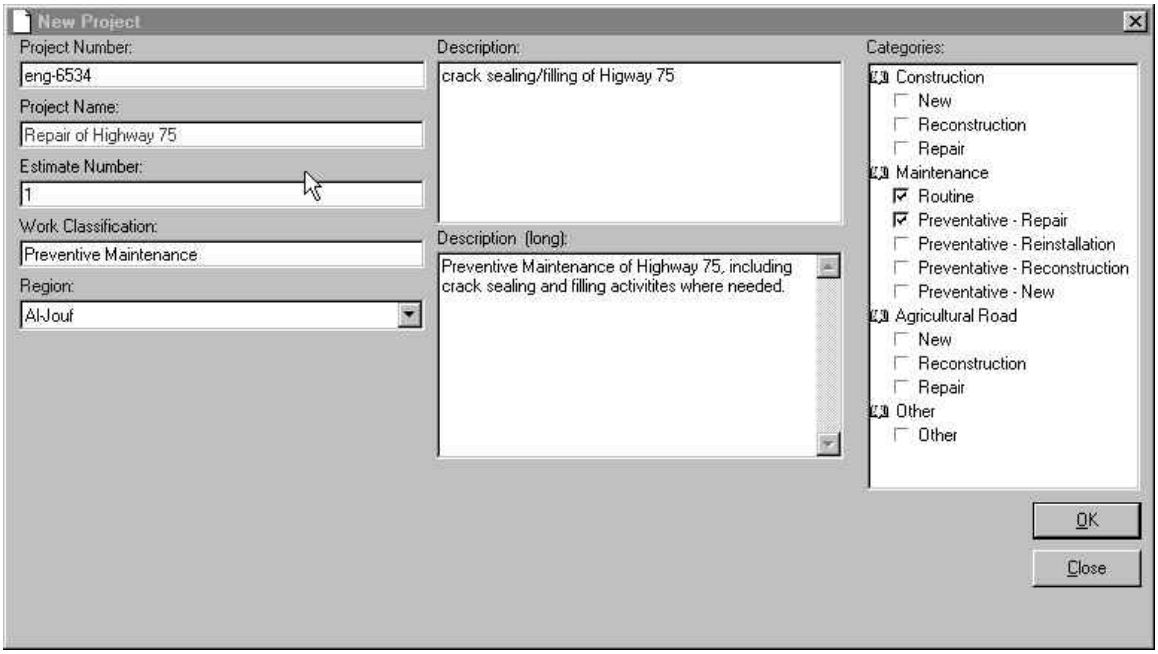

Figure 1. New Project entry form

5.2 Open Existing Project Estimate

The Open Existing Project form displays all the project information for the project highlighted in the project number field. See figure 2. Project information can be added, edited and saved. A Double-click with the computer mouse on the chosen project number opens the estimate for that project.

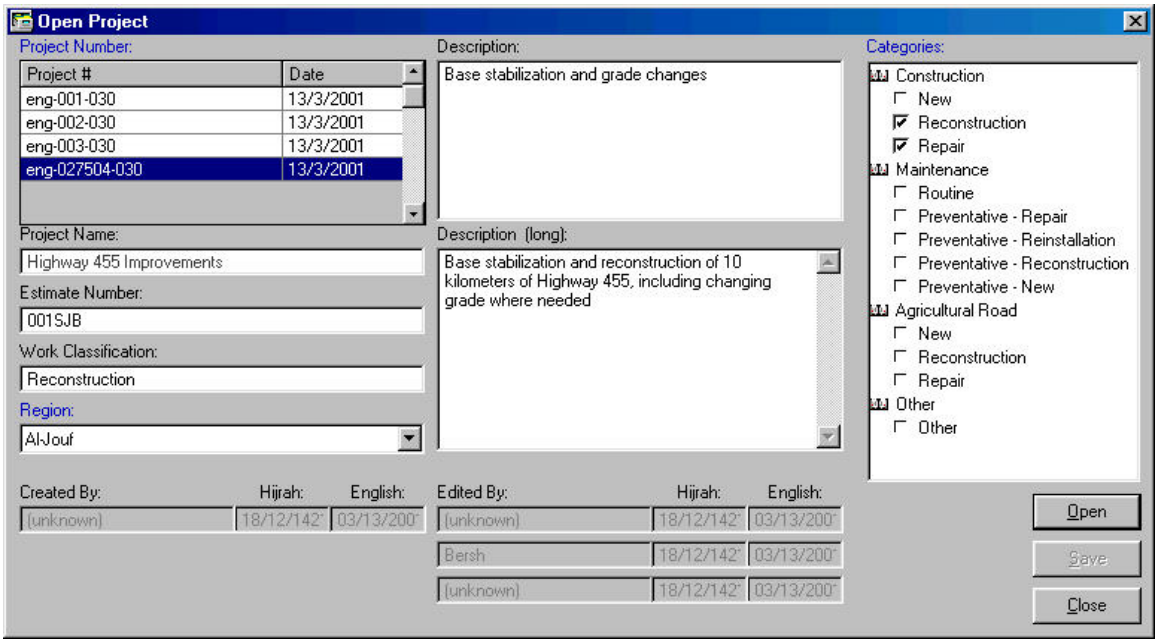

Figure 2. Open Existing Project form

6. PROJECT ESTIMATOR--COMPONENTS

The Project Estimator is comprised of four components. See Figure 3.

- Project Estimator's Worksheet
- Pay Item Codes
- MOC Spec Book
- MOC Spec Book Table of Contents

All four of the displays used in the Project Estimator can be resized, moved or hidden. The software registers the final location of the displays and brings back that same arrangement when the software is restarted. This feature allows the estimator to be customized for various monitor sizes and resolutions and makes it compatible with small screens on laptop computers and very large screens used with CAD workstations.

6.1 Estimator's Worksheet and Pay Item Code List

The Project Estimator's Worksheet is an interactive form. The Pay Item Code list is central to the user's interaction. The list displays all the codes in use by the MOC. These codes are secured and cannot be changed by the user. New codes can only be added by the MOC as part of a system update. Each item code includes the item number, item unit and both the English and Arabic descriptions. The user can navigate the list by either typing portions of a known code in the Item Code field or by using the Description Search Function (English only). The search function dialog box displays a list of all item codes that contain the searched-for description.

Double clicking the mouse on a Pay Item Code loads the Funding Category, the Pay Item Code number, the Item Description and the Item Units into the worksheet. The engineer enters the Quantity and the Unit Price. The worksheet calculates the Total Item Cost and prepares for the next pay item entry. The user can also select an item from the results of the search function. The completed estimate or an estimate in progress can be output to hardcopy using the Detail Cost Estimate feature. See Appendix B.

6.2 MOC Specifications Book and Table of Contents

The MOC Spec Book window displays all nine chapters of the General Specifications for Road and Bridge Construction (English only). The Table of Contents window uses a hierarchy tree to display the chapters, sections and subsections of the book. Clicking the computer mouse on one of the chapters or sub listings opens that section of the book. The Pay Item Code list is synchronized to the chapters, sections, and subsections of the book. Depending on the section of the book being viewed, the Pay Item Code list will scroll to the first pay item related to that section.

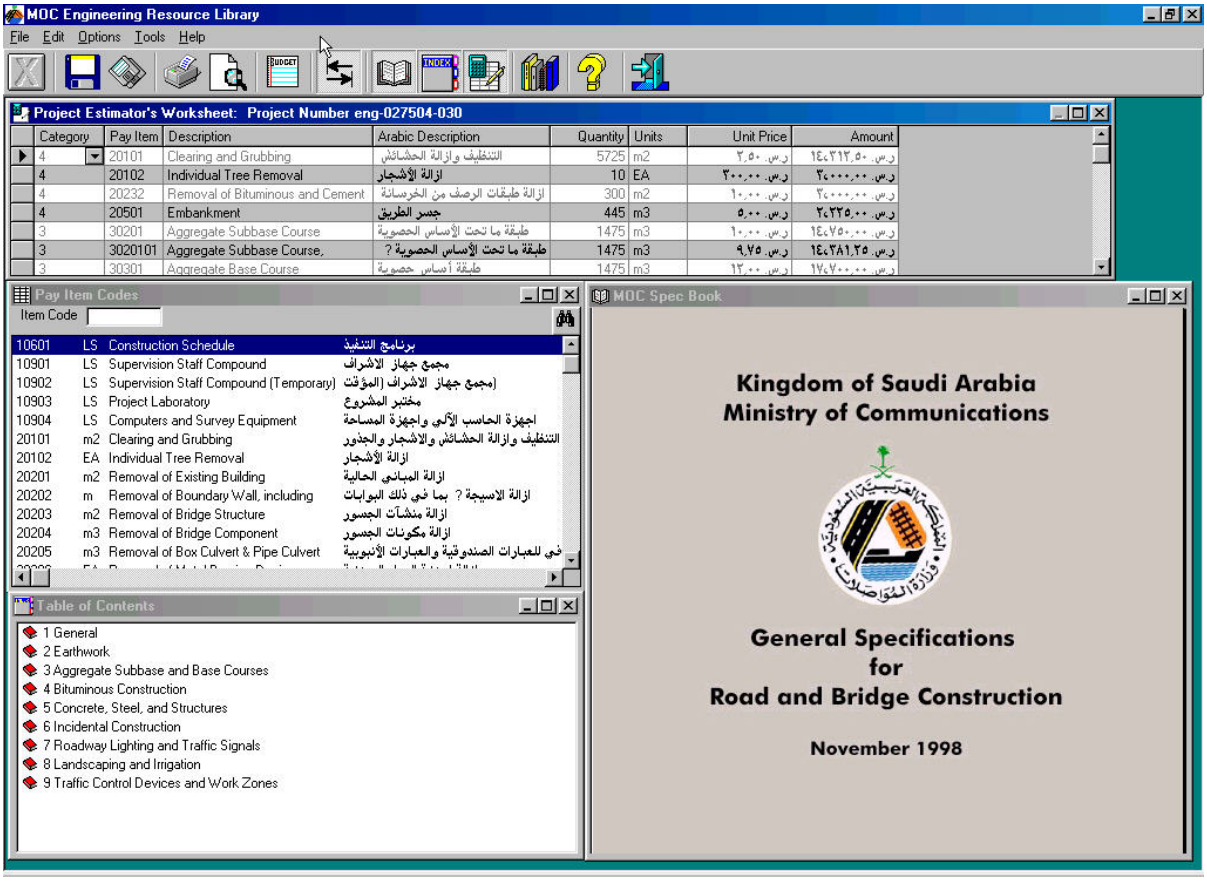

Figure 3. Estimator's Worksheet, Pay Item Codes, MOC Spec Book, Table of Contents

7. AVERAGE UNIT PRICE UTILITY

This utility allows the user to set parameters for Average Unit Price reports and generate reports. Data is be accessed from any project that has been imported into the software. Reports can be targeted to single regions or for all regions combined. Codes can be processed individually or combined. When a code is processed individually, the user has the option of specifying the quantity range. This capability allows the user to focus the analysis on the quantity range that is relevant for the project under consideration.

8. IN-COUNTRY TRAINING

For two weeks during April 2000, informational presentations and software-training sessions were held at the Ministry offices in Riyadh, Saudi Arabia. 25 MOC engineers, team leaders, directors, and director generals attended the informational presentations. These presentations provided an overview of the project, recommendations for implementation, logistics involved in updating the library, and possible future enhancement.

The software training sessions were held in the MOC computer training room. 47 MOC engineers, consultants, and contractors attended the software training. The sessions included hands-on use of the software with each participant using a computer. Each participant was guided through the process of creating a new project, building the

estimate, tabulating bid prices, and generating average unit price reports. In addition, all the publications of the electronic library were reviewed.

8. DEVELOPMENT CHALLENGES

8.1 Paper Document to Electronic Document—Time Consuming

The conversion from paper document to electronic document was very time consuming. The 780-page MOC Highway Materials Manual took approximately 250 technician hours to process, almost 12% of the total project time. It is clear that the move to electronic distribution should be made when electronic versions already exist or when an update to a new version is in progress. We undertook this particular task because no electronic version existed for this manual. The MOC decided that having an electronic version of the existing manual would simplify updating it in the future.

8.2 User Implementation Plan

The participants in the training sessions and informational presentations were enthusiastic about the MOC ERL. They recognized benefits and expressed their understanding of the time and cost efficiencies that could be gained. Although attendance at the sessions was good (70+), hundreds of MOC staff, consultants and contractors that I never had a chance to speak with will need to use the library and estimator in order for this initiative to be effective. Many people will need to change the way they currently build estimates and use specification manuals. Workplace change as significant as this needs dedicated individuals who continually encourage use of the MOC ERL and explain the benefits for the Ministry. While enthusiastic users will promote its use, an implementation plan should be part of the Ministry's management objectives. Continual follow-up of its adoption is also crucial in order to fully understand how future versions will need to be modified.

8.3 Distance—Geographic & Cultural

We didn't anticipate that working with a sponsor thousands of miles away from Michigan Tech was going to be a problem. Using telephone, fax, e-mail, and file transfer via the Internet we expected that communication with our JECOR contacts would be no different then working with a sponsor in Michigan. There were, however, a number or challenges that none of us planned for. We gained a new perspective in overcoming these problems and hopefully other developers and sponsors can learn from our experience.

8.3.1 Time shift

The 8-hour time shift meant that we were just coming to work when the JECOR staff was leaving for the day. Most phone calls were made either to the residences of JECOR staff late in the evening or when our staff would get up in the middle of the night to call Riyadh during business hours.

8.3.2 Work week

Saudi Arabia uses the Saturday through Wednesday workweek. We use the Monday through Friday workweek. That difference left us with Monday, Tuesday and Wednesday for business hours communication. There were times when this conflict delayed the review process.

8.3.3 Holiday observance

This project was scheduled for completion on December 31, 1999. That meant that we would need extensive sponsor review of our work from the end of November through the month of December. Observance of Ramadan during that time meant that all MOC and JECOR staff was not. Hence no review could take place and was postponed into January and February.

8.4 Technical Communication Difficulties

There were times when we attempted to send faxes, but they would not go through for 2 days. Other times we were not able to get a telephone connection. It took several months to establish FTP file transfer capabilities for exchanging review material. Some of the document packages we sent for review via U.P.S. never arrived. The final review packages and the 1000 CDs were sent via Fed Ex, an expensive option.

9. RECOMMENDATIONS

9.1 Through Analysis of Requirements and Understanding of Expectations

We spent several months working with JECOR staff to define specific development needs. Even still, some things were missed and needed to be incorporated in a follow-up maintenance release. Possible users from all levels of the organization as well as users outside of the organization should be surveyed about the desired features and functionality of the software. After development begins everyone involved should be notified of the final requirements so their expectations coincide with the deliverable. Some of the participants at the in-country presentations expected more features. They didn’t realize that some functionality was eliminated in order to meet budget limitations.

9.2 Take Small Steps with These Computer-based Initiatives

Electronic libraries and computer-based tools for administrative activities bring about significant change in the way work is done. Changing work habits is difficult. This initiative might be as big a change as can be expected without rejection by the users. Even still, it will take years until everyone is comfortable working this way. Small steps lead to big steps.

9.3 Give the Users a Product That Is Better Than What They Have

The primary goal of the developer and key to success of the project is giving the users something that is better then what they already have. Numerous case studies of projects that end up being rejected by the users show that reducing functionality or complicating a work process is a recipe for failure. Project requirements must be viewed with a critical eye to insure that the initiative will move work processes in a positive direction and make personnel more productive.

9.4 Work with the Sponsor to Develop an Implementation Plan

In hindsight we should have offered to assist the Ministry in developing an implementation plan. This project can only be successful if the audience it was intended for uses the product. By creating enthusiasm among the Ministry staff during the development stage we could have drawn more users to the final presentations and training, and created a pool of beta testers that we sorely lacked.

9.5 Coordinate Calendars Prior to Beginning the Project

Prior to beginning work on the project both groups should have coordinated calendars for the duration of the project—holidays, anticipated vacations, other work commitments, etc. This would have given us a yearlong picture of the availability of everyone involved.

Appendix A

Ministry Of Communication
Engineering Resource Library

TABLE OF CONTENTS

Appendix B

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Ministry of Communications
Detail Cost Estimate

Project Number: eng-027504-030
Estimate Number: 001SJB
Project Name: Highway 455 Improvements
Region: Al-Jouf
Description: Base stabilization and grade changes
Created By: (unknown) on 18/12/1421
Last Edited By: Bersh on 18/12/1421

Category: 3 Construction - Reconstruction

Pay Item Code	Description	Quantity	Units	Unit Price	Total
30201	طبقة ما تحت الأساس الحصوية	1475.0	m3	ر.ص. ١٠,٠٠	ر.ص. ١٤,٧٥٠,٠٠
3020101	Aggregate Subbase Course (طبقة ما تحت الأساس الحصوية ? تدرّج ١)	1475.0	m3	ر.ص. ٩,٧٥	ر.ص. ١٤,٣٨١,٢٥
30301	Aggregate Subbase Course, Grading I طبقة أساس حصوية	1475.0	m3	ر.ص. ١٢,٠٠	ر.ص. ١٧,٧٠٠,٠٠
60105	Aggregate Base Course نهاية المدخل ? W – طرف تثبيت درازين واق بمعارضة ذات شكل	4.0	EA	ر.ص. ١,٨٥٠,٠٠	ر.ص. ٧,٤٠٠,٠٠
	W-Beam Guardrail Terminal, Approach End				
				Total for Category 3	ر.ص. ٥٤,٢٣١,٢٥

Category: 4 Construction - Repair

Pay Item Code	Description	Quantity	Units	Unit Price	Total
20101	التنظيف وازالة الحشائش والاشجار والجذور	5725.0	m2	ر.ص. ٢,٥٠	ر.ص. ١٤,٣١٢,٥٠
20102	Clearing and Grubbing ازالة الأشجار	10.0	EA	ر.ص. ٣٠٠,٠٠	ر.ص. ٣,٠٠٠,٠٠
20232	Individual Tree Removal ازالة طبقات الرصف من الخرسانة الاسمنتية والبيتومينية	300.0	m2	ر.ص. ١٠,٠٠	ر.ص. ٣,٠٠٠,٠٠
4050302	Removal of Bituminous and Cement Concrete Pavement طبقة السطح العليا من الخرسانة البيتومينية تدرج١? صنف ب	2650.0	m3	ر.ص. ٣٠٠,٠٠	ر.ص. ٧٩٥,٠٠٠,٠٠
60106	Bituminous Concrete Wearing Course, Grading I, Class B طرف حلقي ? W – طرف تثبيت درازين واق بمعارضة ذات شكل	4.0	EA	ر.ص. ١,٨٥٠,٠٠	ر.ص. ٧,٤٠٠,٠٠
	W-Beam Guardrail Terminal, Trailing End				
				Total for Category 4	ر.ص. ٨٢٢,٧١٢,٥٠

Project Total: ر.ص. ٨٧٦,٩٤٣,٧٥